

Syllabus for the test of Subject Knowledge mentioned at Sl.No.III of the Vacancy Advertisement/Notification

SL.NO	POST	SYLLABUS
1	Assistant Engineer (Mechanical)	GATE 2025 syllabus for Mechanical Engineering
2	Assistant Engineer (Electrical)	GATE 2025 syllabus for Electrical Engineering
3.	Assistant Engineer (Civil)	GATE 2025 syllabus for Civil Engineering
4	Deputy Director(Research)	<p>Data Analysis Basic Concepts: Key concepts in Statistics and Applications; Concept of Classification and Tabulation; Diagrammatic and Graphical representation of data.</p> <p>Measures of Central Tendency: Concept of Arithmetic Mean, Median, Mode, Geometric Mean, Harmonic Mean.</p> <p>Measures of Dispersion: Concept of Range, Quartile Deviation and Standard Deviation.</p> <p>Correlation Analysis: Basic Concept and importance of Correlation; Types of Correlation.</p> <p>Research Design and Research Process</p> <p>Data Collection: Nature of Data (Primary & Secondary Data), Methods of Primary Data Collection and Secondary Data collection – Knowledge of Various Data Sources- Tools of Data Collection – Measurement and Scaling.</p> <p>Probability: Introduction to Probability Theory; Counting Methods; Conditional Probability and Independence; Bayes Formula; Random Variable, Expectations and Moments; Distribution Function, Characteristics Function and Moment Generating Function.</p> <p>Statistical Inference:</p> <p>Introduction to Estimation – Concept of Point Estimation and Interval Estimation</p> <p>Large Sample Tests: Hypothesis Test concerning Population Mean, Hypothesis Test concerning the differences between Two Population Means, Hypothesis Test concerning Population Proportion and Hypothesis Test concerning the differences between Two Population Proportions.</p> <p>Small Sample Tests: Hypothesis Test concerning Population Mean, Hypothesis Test concerning the differences between</p>

		<p>Two Population Means (Independent Samples) and Hypothesis Test concerning the differences between Two Population Means (Dependent Samples).</p> <p>Parametric Test: Analysis of Variance: Basic Concepts and Assumptions, One-Way Classification and Two-Way Classification (Without Replication and With Replication)</p> <p>Real Numbers and Mathematical Induction – Progressions – Arithmetic, Geometric and Harmonic – Permutation and Combinations – Surds and Indices – Theory of Matrices Introduction to Calculus and Limits – Differentiation and Applications – Integration and Applications</p> <p>Micro-economic Analysis: Demand Analysis: Law of Demand, Elasticity of Demand- Demand Forecasting: Level of Demand Forecasting, Criteria for Good Demand Forecasting, Methods or Techniques of Demand Forecasting, Survey Methods, Statistical Methods, Demand Forecasting for a New Products.</p> <p>Supply & Market Equilibrium: Supply and Law of Supply, Exceptions to the Law of Supply, Changes or Shifts in Supply. Elasticity of Supply, Factors Determining Elasticity of Supply, Practical Importance, Market Equilibrium and Changes in Market Equilibrium.</p> <p>Revenue Analysis and Pricing Policies- Revenue: Meaning and Types, Relationship between Revenues and Price Elasticity of Demand, Pricing Policies, Objectives of Pricing Policies, Pricing Methods.</p> <p>Price Determination under Perfect Competition- Market and Market Structure, Perfect Competition, Price-Output Determination under perfect Competition, Short-run Industry Equilibrium under perfect Competition, Short-run Firm Equilibrium under Perfect Competition, Long-run Industry Equilibrium under Perfect Competition, Long-run Firm Equilibrium under Perfect Competition.</p>
5	Assistant Traffic Manager	<p>1. Basic Principles of Port and Cargo Operations</p> <ul style="list-style-type: none"> ○ Assess understanding of cargo types (bulk, break-bulk, containerized) and port operations. ○ Assess understanding of Port types based on size and mode of handling. <p>2. Shipping and Maritime Geography</p> <ul style="list-style-type: none"> ○ Evaluate awareness of Major and Non Major

		<p>Ports of India and Major International ports.</p> <ul style="list-style-type: none"> ○ Evaluate awareness of Shipping routes and Maritime trade patterns of India. <p>3. Transportation Modes and Logistics</p> <ul style="list-style-type: none"> ○ Test knowledge on modes of transport, road, rail, sea and air with basic knowledge on each of the modes. ○ Test knowledge of railway cargo handling, basic railway operations, and intermodal transport systems. <p>4. General Awareness of Acts, Policy, Guidelines, Initiatives of Government</p> <ul style="list-style-type: none"> ○ Evaluate basic awareness of Major Port Authority Act, 2021, Indian Ports Act, 1908, National logistics Policy, 2022, Sagarmala Programme, Harit Sagar Guidelines, 2023.
6	Senior Medical Officer	<p><u>General Medicine + Paediatrics: -</u></p> <ol style="list-style-type: none"> 1. Cardiology 2. Respiratory diseases 3. Gastro-intestinal 4. Genito-Urinary 5. Neurology 6. Haematology 7. Endocrinology 8. Metabolic disorders 9. Infections/Communicable Diseases 10. Nutrition/Growth 11. Diseases of the skin (Dermatology) 12. Musculoskeletal System 13. Psychiatry 14. First aid 15. Emergency Medicine 16. Common Poisoning 17. Snakebite 18. Tropical Medicine 19. Critical Care Medicine 20. Emphasis on medical procedures 21. Pathophysiological basis of diseases 22. Vaccines preventable diseases and Non-vaccines preventable diseases 23. Vitamin deficiency diseases 24. In psychiatry include – Depression, psychosis, anxiety, bipolar diseases, and Schizophrenia 25. National Health Programs

		<p><u>Paediatrics</u></p> <ol style="list-style-type: none"> 1. Common childhood emergencies 2. Basic newborn care 3. Normal developmental milestones 4. Accidents and poisonings in children 5. Birth defects and counselling including autism 6. Immunization in children 7. Recognizing children with special needs and management 8. National programs related to child health <p><u>Surgery :-</u></p> <ol style="list-style-type: none"> 1. General Surgery 2. Urological Surgery 3. Otorhinolaryngology E.N.T 4. Orthopaedic surgery 5. Ophthalmology 6. Anesthesiology 7. Traumatology 8. Diagnosis and management of common surgical ailments 9. Pre-operative and post-operative care of surgical patients 10. Medico legal and ethical issues of surgery 11. Wound healing 12. General Dentistry
7	Master Gr-II	<p>1. Section ‘A’– Seamanship, Dry Docking</p> <p>(a) Candidates expected to know “Seamanship” as per syllabus of ‘SERANG’. Level of difficulties of questions will vary as per the grade.</p> <p>(b) General Section:-</p> <ul style="list-style-type: none"> • Identifying ship’s parts. • Knowledge about density, • Load Line, • Draft etc. • Knowledge about wires • Knowledge about ropes & knots. • Through knowledge of Boat Maintenance, • Painting and importance of cleanliness of the vessels. <p>2. Section ‘B’ – Safety / LSA / FFA.</p> <ul style="list-style-type: none"> o Life Saving. o Knowledge of the operation of Life Jackets, o Life buoys o Rigid life rafts o Survival techniques o Heaving line

		<p>3. Section 'C' - Meteorology. Knowledge of seasons and general weather condition throughout the year in area of operation</p>
8	Engineer Gr II	<p>1. General and Marine Engineering</p> <p>1.1 Types of Ships and Inland Vessels:-Types of Ships plying in harbour, coastal areas and ocean going vessels. Parts of the ships and general arrangements. Cargo spaces, tanks and constructional details of different type of ships employed as Inland Vessels. Types of propulsion and manoeuvring methods.</p> <p>1. 2 General Section:- Fundamental units of Work, Force, Power, Heat and Temperatures, Area, Volume, General Ship terms, Friction. Displacement, Dead weight, Light Weight, Density, Specific Gravity. Overall Length, Depth, and Draft of ships.</p> <p>1.3 Knowledge and understanding of air starting system and reversing mechanism.</p> <p>1.4 Preparation for starting of generator engine and other machinery.</p> <p>1.5 Preparation for starting of main engine. Maintaining required speed and direction and responding to communication with the bridge. Ensuring smooth operation of the plant and maintaining parameters.</p> <p>1.6 Deck Machinery:-Familiarity with mooring equipment and anchors and anchor handling equipment. (Anchor, anchor chain, chain locker, capstan, windlass and deck crane). Maintenance of Deck Machinery.</p> <p>1.7 Hydraulic and Pneumatic machinery:- Hydraulic power pack, flow control and direction control valves and motor, cleanliness of hydraulic oil for reliable operation, application of hydraulics in main engine clutch control, steering gear, windlass and similar deck machinery.</p> <p>1.8 General Engineering Knowledge: Properties of materials, prevention of corrosion, protection and preservation of equipment. Type of paints and applicators.</p> <p>2. Electrical Engineering</p> <p>2.1 Basic Electrical Knowledge: voltage, current, power units, concepts of resistance. Types of batteries and their maintenance (lead acid, alkaline battery and</p>

		<p>dry).Concept of plates, cells and voltage. Charging of batteries and battery chargers.</p> <p>2.2 Basic knowledge of AC and DC generators and motors and their construction.</p> <p>2.3 Basic knowledge of control system and electronics.</p>
9	Senior Accounts Officer and Assistant Accounts Officer	<p>1. PROJECT MANAGEMENT AND APPRAISAL</p> <ul style="list-style-type: none"> • Capital Budgeting Techniques, Cost of Capital computation • Project Appraisal Methods: Payback, NPV, IRR, FIRR, EIRR • Project Planning Project Life Cycle management • Viability Gap Funding <p>2. GOVERNMENT ACCOUNTING</p> <ul style="list-style-type: none"> • Indian Accounting Standards(IndAS) • GFR2017 <p>3. TAXATION AND REGULATORY FRAMEWORK</p> <ul style="list-style-type: none"> • Income Tax Act1961 • GST Act 2017 • Customs Act 1962 • Major Ports Authorities Act 2021 • Indian Ports Act 1908 • Tariff Authority for Major Ports(TAMP) Guidelines <p>4. PRICING AND DECISION MAKING</p> <ul style="list-style-type: none"> • New Product pricing Strategies Market based pricing • Make or buy decisions, Shutdown decisions <p>5. COST CONCEPTS AND PRINCIPLES</p> <ul style="list-style-type: none"> • GACAP Framework Cost Accounting Standards • Cost Records and Audit Rules 2014 <p>6. COSTING METHODS AND APPLICATIONS</p> <ul style="list-style-type: none"> • Marginal Costing Absorption Costing, Cost-Volume-Profit Analysis • Budget types, Budgetary Control Flexible Budgets <p>7. MODERN COST MANAGEMENT</p> <ul style="list-style-type: none"> • Cost Control techniques, Cost Reduction strategies <p>8. FINANCIAL ACCOUNTING AND REPORTING</p> <ul style="list-style-type: none"> • Corporate Financial Statements, Consolidated Accounts • CashFlow Analysis, FundFlowAnalysis, Ratio Analysis

10	Junior Director & Deputy Director(EDP)	<ol style="list-style-type: none"> 1 Programming in C, C++, .Net, ASP, PHP, Java related platforms 2 R-Database Management Systems & its related concepts 3 Windows and Unix related Operating System concepts 4 Essentials of Networking (LAN/WAN) including network Administration, Cryptography and Cryptanalysis, Systems and Network Security 5 Information Security Management & its related concepts. Wireless security 6 Data Structures & Algorithms, Database and Application Security 7 Computer Organization & architecture 8 Information Systems, Software Engineering & testing 9 Computer Trouble Shooting & Maintenance, Computer Peripherals and Interfaces 10 Microprocessors/Microcontrollers, Peripherals and Interfaces 11 Theory of Computation & Compiler Design 12 Cloud Computing & Technologies 13 Web related Technologies 14 ERP & its related Technologies (SAP/Oracle/Zoho) 15 AI/ML/AR/VR related technologies & its concepts 16 Image processing, graphics, and multimedia & related security 17 Database and Application Security 18 Deep Learning and Applications 19 Software Project Management 20 Cyber Forensics
11	PA to HOD	<ol style="list-style-type: none"> 1. Manual of Office procedures DARPG of Govt. of India 2. RTI Act 2005 3. Secretarial Practice 4. MPA Act 5. M.S office tools/key board shortcuts/excel formulas 6. Identifying the opt words for the shorthand outline (symbol)

12	Law Officer Gr-I	<p>PART 1- LEGAL Knowledge</p> <ol style="list-style-type: none"> 1. Constitution of India with special emphasis on Directive principles and enforcement of rights through writs, functioning of High courts and Supreme Court. 2. Civil procedure code.1908 and Limitation Act,1963 3. Indian Contract Act,1872&Specifie Relief Act,1963 4. Arbitration and Conciliation Act,1996 5. Pubic Premises (Eviction of Unauthorized Occupants) Act,1971 6. Transfer of Property Act,1882 7. Major Ports Authorities Act,2021 8. Indian Port Act,1908 9. Rules and Regulations framed under MPT Act/MPA Act/Indian Ports Act as listed in the website of NMPA 10. Admiralty (Jurisdiction and Settlement of Maritime Claims) Act,2017 11. Labour Laws like Industrial Disputes Act, 1947, Payment of gratuity Act, 1972, Minimum Wages Act, 1948. ESI & EPF Insolvency & Bankruptcy Code 12. Customs Act
13	Sports Officer	<ol style="list-style-type: none"> 1. Foundation and Methods in Physical Education 2. Research Methods in Physical Education 3. Sports Statistics and use of Computers in Physical Education 4. Scientific Principles of Sports Training 5. Test, Measurement, and Evaluation in Physical Education 6. Sports Psychology, Exercise Physiology 7. Kinesiology and Sports Biomechanics 8. Health Education and Sports Medicine 9. Games and Sports Awards